

Physical Fitness at Seville-Guilford Fire & EMS Department

Encouraging a Fitness-Minded Workforce

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**Certification Statement**

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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### **Abstract**

The research problem was that very few members of the Seville-Guilford Fire & EMS Department are engaged in a fitness program or take advantage of the equipment made available to them. The purpose of the research study was to identify the reason(s) Seville-Guilford firefighters are not participating in a fitness program or taking advantage of the station equipment, and to identify employee health and wellness incentives. Using descriptive research methodology, the following questions were answered:

1. What state and nationally accepted fitness standards can be implemented into the Seville-Guilford Fire & EMS Department?
2. How does the private sector motivate their employees to participate in a health and wellness program?
3. How do other Ohio fire departments motivate their personnel to participate in a health and wellness program?
4. Why are Seville-Guilford firefighters not participating in a fitness program or taking advantage of the station equipment?
5. What will serve as positive motivators for Seville-Guilford firefighters to engage in a fitness program or take advantage of the equipment made available to them?

The procedures for this project included a printed and web-based literature review, personal interviews, and surveys of department members as well as other fire departments throughout the state of Ohio.

The results answered the research questions and offered examples of incentives used in successful programs, the program components desired by the department membership, and also the components recommended by national standards and nationally accepted model programs.

The results of this research will be forwarded to the department leadership and to the governing body to be used as a basis for establishing a fitness program which meets the needs of the department membership. Recommendations include developing an incentive program, increasing the dedicated workout space and types of equipment offered, continuing the occupational medicine/screening program, and creating individualized fitness programs.

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## **Introduction**

Cardiac related incidents continue to be a leading cause of firefighter Line of Duty Deaths (LODD's). The United States Fire Administration (USFA) statistics show that 57% of firefighter line of duty deaths in 2010 were cardiac related (USFA, 2010). To reduce cardiovascular disease and other illnesses, the Seville-Guilford Fire & EMS Department (SGFD) requires annual physicals for its personnel, and promotes the physical fitness of its members by encouraging exercise both on and off duty. The problem is that very few department personnel are engaged in a fitness program or take advantage of the equipment made available to them.

The purpose of this research study is to identify the reason(s) Seville-Guilford firefighters are not participating in a fitness program or taking advantage of the station equipment, and to identify employee health and wellness incentives. Descriptive methodology was employed to include a review of the applicable state and national fitness standards for firefighters, including recommended equipment and program components, surveys of department personnel and other fire departments, as well as literature review and interviews to discover how the private sector motivates employees. This research will focus on discovering the answers to the following questions: 1. What state and nationally accepted fitness standards can be implemented into the Seville-Guilford Fire & EMS Department? 2. How does the private sector motivate their employees to participate in a health and wellness program? 3. How do other Ohio fire departments motivate their personnel to participate in a health and wellness program?

4. Why are Seville-Guilford firefighters not participating in a fitness program or taking advantage of the station equipment? 5. What will serve as positive motivators for Seville-Guilford firefighters to engage in a fitness program or take advantage of the equipment made available to them?

### **Background and Significance**

Seville-Guilford Fire & EMS is a combination department formed with the merger of the Seville-Guilford Township Volunteer Fire Department and Seville EMS in 2006. The traditionally volunteer fire department traces its history to 1869, while the staffed EMS department was formed in 1981. Since the merger, the department has operated as a combination department under the direction of Guilford Township, Medina County, Ohio. Located approximately 45 miles south of Cleveland at the intersection of Interstates 71 and 76, the township is largely rural, but includes the incorporated Village of Seville, which is home to a growing industrial park as well as two hotels serving businesses and travelers. According to the Medina County Auditor, the combined population of the township and village stands at 5941, while the highway interchange and industrial park result in a varying transient population. Currently staffed with two full-time personnel (Chief and paramedic), 8 part-time employees, and 33 volunteer/paid-on-call members, the department responds to an average of 725 requests for service annually, as shown in the Seville-Guilford Fire & EMS Annual Report to the Trustees.

The relatively rapid growth of the industrial park, which boasts a metal stamping plant, rubber manufacturing plant, a 153,000 square foot tire warehouse, a bleach and chemical producer, interstate trucking company, a bronze mill, and many other industrial

and commercial installations, coupled with a shrinking volunteer base has necessitated the transformation of SGFD from an entirely volunteer department a few years ago to its current staffing model. Additionally, this new industry and the corresponding increase of truck and rail traffic has changed the potential hazards from the occasional residential or barn fire, to the possibility of a large scale industrial emergency, complicated by various hazardous materials.

According to minutes of the Guilford Township Trustees meetings, the department has provided pre-employment physicals since 1992, and, in an effort to identify “at risk” personnel and treat or manage possible cardiac problems, has provided, since 2005, annual health screenings for members as well as complete physicals annually, based on job classification and findings from the screenings. These evaluations are provided by Healthy Benefits, the occupational medicine provider at Summa Wadsworth-Rittman Hospital. At the completion of the screenings or physicals, the department receives a medical clearance form indicating that the firefighter is either fit for duty or not fit for duty, but does not receive detailed results or confidential medical information due to confidentiality regulations. Therefore, any specific problems are only reported by the individual member at his or her discretion. Some health risks reported as a result of these screenings and physicals include blood pressure, cardiac problems, and diabetic concerns among firefighters.

A review of department Bureau of Workers Compensation claims over the past five years shows two hand injuries, one back injury, one knee/ankle injury caused by a fall on the fireground, and of particular note, one firefighter who developed chest pain at



a working structure fire. Fortunately, this individual was cleared to return to work after evaluation with no cardiac abnormalities, though the incident did raise concern about the cardiovascular fitness of department personnel.

In 2010, the local police department invited fire department members to use the equipment at their small gym in the basement of the former police station. A group of 4-5 firefighters began working out and became interested in establishing a fitness culture within the department. Due to the increasing average age of department personnel, the statistical evidence of cardiac related LODD's, and the introduction to the department of the National Fallen Firefighters Foundation's 16 Life Safety Initiatives, this group began talking to their fellow members about a fitness program. In May, 2011, the gym equipment was moved to empty bay space at the fire station to encourage personnel to work-out while on shift, as well as have free access during off-duty hours. From May to August, however, sign-in sheets showed only eight of 43 members used the equipment at all, while only four used the gym consistently (more than once per week). This problem relates to Unit 6 of the Executive Fire Officer Program student manual in that it will require a significant cultural change within the department to increase and maintain participation in a fitness program. This participation, however, will improve the ability of department personnel to perform their jobs, reduce the likelihood of cardiac related injury and death, reduce the likelihood of lost-time injuries, and ultimately provide better service to the citizens of Guilford Township. This initiative corresponds to the first objective of the United States Fire Administration: Reduce the risk at the local level through prevention and mitigation. It also relates to the Executive Fire Officer Program

Executive Development course with respect to transactional and transformational leadership by discovering incentives necessary to prompt department members to take part in a fitness program, as well as establishing a culture of continued improvement.

### **Literature Review**

It is widely documented that the leading cause of firefighter fatalities in the United States continues to be cardiac related. According to statistics provided by the U.S. Fire Administration, cardiac arrests accounted for 50% of firefighter Line-of-Duty Death (LODDs) in 2009, and 57% in 2010. The risk factors for sudden cardiac death are equally as well researched and documented, and include obesity, tobacco use, stress, poor diet, genetics, and a sedentary lifestyle, according to information published by the Cleveland Clinic. These factors combine to create what is termed the Metabolic Syndrome, which is indicative of increased instances of cardio-vascular disease. In the National Volunteer Fire Council report, "Addressing the Epidemic of Obesity in the United States Fire Service," metabolic syndrome is defined as follows:

Metabolic syndrome is related to increased risk of cardiovascular disease, stroke, and diabetes. It is diagnosed when a person has three or more of a designated list of risk factors: (a) a waist circumference over 40 inches for men and 35 inches for women; (b) serum triglycerides of 150 mg/dL or higher; (c) high density lipoproteins (HDL) levels below 40 mg/dL in men or 50 mg/dL in women; (d) blood pressure over 130/85 mm Hg; and (e) fasting glucose of more than 100 mg/dL (Haddock et al., 2011, p. 7)

Clearly, obesity is a substantial contributing factor to the metabolic syndrome, and by extension, cardiovascular disease. Obesity is most commonly measured using the Body Mass Index (BMI) which measures the ratio of weight to height. BMI can be computed by dividing an individual's weight in pounds by his height squared, then multiplying this number by 703. A BMI greater than 30 indicates obesity. The report goes on to show that the "rates of clinical obesity among firefighters have been determined to be between 30 percent and 40 percent (Haddock, 13). While this percentage coincides with the national average for all people, the physical and psychological demands of the firefighting profession indicate the need for personnel who are more fit than the general population.

Though a genetic predisposition is unavoidable, the remaining factors can be minimized through lifestyle modification including exercise, relaxation techniques, tobacco cessation, diet and portion control, and also early detection of health related problems.

In 2001, LeCuyer supported the importance of physical activity:

Heart disease, diabetes, and hypertension are all hypokinetic diseases...meaning that they are tied to a lack of activity. It is reported that a physically active lifestyle can reduce the risk of heart attack by anywhere from 35 to 55 percent. (p. 3)

National Fire Protection Association (NFPA) standards 1500, Standard on Fire Department Occupational Safety and Health Program, and 1583, Standard on Health-Related Fitness Programs for Fire Fighters, each consider fitness and wellness to be a

comprehensive program, including physicals and health screenings, as well as educational components and individualized fitness and exercise programs. The Fire Service Joint Labor Management Wellness-Fitness Initiative (WFI), a collaboration between the International Association of Firefighters (IAFF) and International Association of Fire Chiefs (IAFC) describes in detail the components of their recommended program, including health testing and screening, education, data collection, establishment and make-up of a fitness committee, and the qualifications of personal fitness trainers. Additionally, the Ohio Administrative Code (OAC) 4123:1-21-07, which addresses fire department occupational safety and health, requires the employer to provide a fitness and wellness program, and further places the responsibility upon the individual firefighter to take part in the program. Though the WFI, NFPA, and OAC establish an expectation that a program be provided, and that the firefighters will comply, all clearly state that the program shall not be punitive. While firefighters, therefore, are required to attend and perform training to remain proficient in the technical aspects of their jobs, there is no universal mandate requiring members of the profession to prepare for the physical demands of being a firefighter. The WFI and NFPA also list recommended equipment to be included in a fire department workout room or commercial fitness center.

There are also countless articles and studies available on-line and in various print media discussing the benefits of corporate wellness programs, from the potential for a more productive workforce, to the more quantifiable cost savings associated with lost time due to injury and illness, as well as the associated increased costs of benefits and

insurance. Companies can realize anywhere from a three to one return on investment (Larson, 2011) to as much as six to one (Steinbach, 2010) depending on types of work and types of wellness programs instituted. The challenge, therefore, is getting employees to take part in the various programs and initiatives. Both the public and private sectors have created various incentives to entice their employees to begin and remain active in corporate wellness and fitness programs. These incentives ranged from reducing employee health premiums to awarding points for various activities, that could be exchanged for gift certificates or other prizes (Larson).

Incentives aside, there is clearly a need for a cultural change in the fire service; one that begins with risk reduction and continues with behavioral modification including better diet and exercise.

### **Procedures**

The purpose of this research was to discover the state and national standards for use in creating a fitness program, and to identify ways to promote participation in a program by members of the Seville-Guilford Fire & EMS Department. The research began with a literature review at the Learning Resource Center at the National Fire Academy in Emmitsburg, Maryland in August, 2011. There is a tremendous amount of information in the print media regarding private sector and firefighter oriented fitness programs, as well as studies and statistics pertaining to cardiac related illness. Additional literature review was accomplished over the next several months through internet

searches, which provided new, up-to-the-minute information as recently as one week before the completion of this research project.

Interviews were conducted with Lou Ann Mallon, RN, who is the coordinator for the wellness program at Luk, Incorporated in Wooster, Ohio, and also with Lt. Gary Henry, a firefighter/paramedic with SGFD and an employee of the Cleveland Clinic, to discover the components of their respective fitness and wellness programs.

Finally, two internet based surveys were created to collect additional data. The first survey was limited to active department members, and focused on their expectations of a fitness program while attempting to discover the factors which would motivate them to take part in a department sponsored program. The second survey was forwarded to 1340 email addresses in the OFCA database by Erica Schortgen, Membership Services Coordinator, and viewed by 428, or 32% of those addresses. Ultimately, 260 surveys were completed, representing 19% of the total, or 61% of those who viewed the email request. The survey was designed to discover the components of fitness and wellness programs administered by other fire departments in the state, as well as an idea of program compliance percentage by members of other departments. It was felt that limiting the survey to Ohio Fire Chiefs Association membership would result in obtaining data almost entirely from departments who, like SGFD, also fell under the pertinent sections of the Ohio Administrative Code. Further limitations include the likelihood that multiple members of the same department may have completed the survey, increasing the margin for error, and that the survey may not have reached or been completed by a representative of every department in the state. For the purposes of identifying what

other departments are doing, however, it was felt the limitations did not appreciably affect the outcome, as a total of 260 responses were recorded. In both surveys, respondents had, on multiple questions, the opportunity to clarify their answers or add additional information in sections for commentary. The results of the surveys may be found in Appendix A and B, and select commentary for both surveys is included in Appendix C.

The research and data will be used to develop a fitness and wellness program based on the recommendations of the published standards, the successful approaches used by the private sector, the successful components included in programs offered by other fire department, and, as much as can be accomplished in consideration of space and budgetary considerations, the wishes and desires of department members. The program will be modeled on the best practices gathered from other departments throughout the state.

## **Results**

Question 1: What state and nationally accepted standards can be implemented into the Seville-Guilford Fire Department?

A review of Ohio Administrative Code 4123:1-21-07, Fire department occupational safety and health, which falls under the legislation covering the Bureau of Worker's Compensation, mandates under (E)(1) that:

The employer shall establish and provide a health-related fitness and wellness program that enables members to develop and maintain a level of health and

fitness to safely perform their assigned functions. This program will not be punitive, as the purpose of the program is to improve the health and well-being of the individual.

It continues, placing the responsibility for taking part in the program upon the individual, as well as mandating the employer to adopt a written policy to address the emotional and psychological well-being of department members. It does not, however, go into great detail regarding what is to be included in the program, and offers no legal recourse against those department members who do not take part in the program. It offers no significant guidance into how to create or maintain a program, merely stating that there should be one, and that firefighters should take part.

A more comprehensive standard is NFPA 1583, which addresses a fitness and wellness program from multiple perspectives. This standard requires the assignment of a health and fitness coordinator, fitness assessments for all members, education and counseling for department personnel, data collection, and participation and compliance by department members. The standard further addresses components of a fitness assessment to include: aerobic capacity, body composition, muscular strength, endurance, and flexibility, and establishes that a fitness program should include components to maintain or improve in each of these areas.

Perhaps the most complete model of a fire fighter fitness program can be found in the WFI. While not a standard, it is the model program endorsed by the IAFF and IAFC, and covers each area in detail, providing recommendations on specific screenings and how they should be performed, specifying types of fitness equipment to be included in a



gym, establishing criteria for selecting and certifying personal fitness trainers, and even offering recommendations on how to finance the purchase of the necessary equipment. The WFI suggests the following types of equipment be made available to all uniformed personnel:

Power cage/squat rack, adjustable pulley machine, leg press/hip sled machine, leg curl machine, adjustable bench, lat pull down/seated row machine/ Olympic bar and an assortment of weights (it is recommended that there is a minimum of 300 pounds), dumbbells (it is recommended that there is a minimum of 5 to 80 pounds), floor mat for abdominal and flexibility training, burst-resistant stability ball(s), medicine ball(s), and an assortment of resistance exercise bands and/or tubing. (p. 27)

It goes on to recommend a treadmill, stationary bike, stair stepper, stepmill, elliptical cross trainer, or rowing ergometer.

A review of the current equipment in the SGFD gym includes a power rack, leg press, leg curl, adjustable flat and incline benches, lat pull down/seated row, Olympic bars and weights in excess of 1500 pounds, and dumbbell pairs to 80 pounds in 10 pound increments. Also available are resistance bands, a stability ball, magnetic donut weights to increase the weight of the dumbbells by five pounds each, a treadmill and an elliptical machine. Floor/exercise mats are not available at this time, however there is a television and DVD player available for personnel to play their own workout DVD's and floor space may be cleared for that purpose. Unfortunately, the concrete floor is not conducive to this type of workout.

Question 2: How does the private sector motivate their employees to participate in a health and wellness program?

Luk, Incorporated, a manufacturer of clutch components for the automotive industry, maintains a popular fitness and wellness program for its employees. According to Lou Ann Mallon, RN, director of the program, in an interview on January 11, 2012, the number of participants continues to increase each year. She extols the importance of “branding” the program, and recommends that we “give out T-shirts with the logo” of the program. The logo legitimizes the program and gives it an identity the employees can relate to. She advocates making the logo visible throughout the workplace using signage and including it in memos and newsletters. Mallon also advocates the use of incentives for participation and for meeting objectives. The Luk, Incorporated program assigns point values based on participation in various activities, achieving pre-set goals, and taking part in health screenings and prevention opportunities. These points can be exchanged for items such as company apparel, gift certificates, or annual bonuses. Mallon attributes the success of the program to continual awareness campaigns, employees seeing their co-workers taking part, and the above mentioned incentives. “They say incentives don’t work,” said Mallon, “but incentives do work.” She also cautions against removing or reducing the incentives once they are established, as this can negatively affect participation from employees.

The Cleveland Clinic also offers incentives to its employees for participation in its wellness program. Employees are offered free or reduced-cost fitness center memberships and exercise programs which include family members. Each employee in

the program meets with an advisor to gauge progress and compare individual biometrics readings to acceptable standards. The standards place a heavy emphasis on Body Mass Index scores. Those meeting the standards realize a reduction in the employee contribution to their health insurance. One limitation to this evaluation, according to Lt. Gary Henry, a firefighter/paramedic with SGFD, an employee of the Cleveland Clinic, and an avid body builder and power-lifter, is that the system places too much emphasis on height and weight, and makes little accommodation for actual body fat percentage. He states that the BMI categorizes him as obese, while his actual body fat percentage of 14% indicates he is extremely fit. He advocates using the BMI as a starting point with department personnel, then employing other assessment methods as necessary to obtain a better picture of a firefighter's fitness level.

Question 3: How do other fire departments motivate their personnel to participate in a health and wellness program?

The survey of Ohio fire departments realized 260 responses, representing full-time, part-time, and volunteer departments, with nearly 70% of respondents performing both fire and EMS services. Of those, only 24% did not have a fitness program of some type.

Reasons cited for not having a fitness program centered around room for a workout area: "Lack of space in house." This idea was echoed by others: "Lack of space, difficult for volunteers," "Lack of space," and "Do not have enough room." Other reasons for not having a program included a lack of funds for equipment (59%) and a lack of support from the political entity (39.8%). The survey did not examine whether the lack of support from the political entity was financial, or involved other factors. Nearly 40% of

departments which did not have a program cited a lack of participation from firefighters as a reason.

Nearly 69% had a fitness center, either on or off-site. Nearly two-thirds of respondents characterized their programs as voluntary, and over 21% included incentives as part of their programs. One respondent commented that in their program it is “Mandatory to participate in some form, and incentives are a tee shirt and shorts for those that meet a certain criteria” The degree to which the components are mandatory varies, and another respondent stated, “Annual physical mandatory, all else voluntary.” Incentives offered included gym memberships, bonuses, spouse/family members allowed to use equipment, and access to a trainer. At least one department offered a “monetary bonus for meeting standards,” while other incentives ranged from a “reduction of health care premiums” to an “extra day off during calendar year” Overwhelmingly, departments permitted their personnel to work out while on duty, with 85.9% allowing it.

Additional information gleaned from the survey shows that over 51% of respondents showed less than a 40% participation rate among their personnel. Of those that have some type of fitness program, the majority followed a department created plan, and the most commonly referred to standards were the IAFF/IAFC Joint Labor Management Wellness Fitness Initiative and NFPA 1583, Standard on Health-Related Fitness Programs for Fire Fighters. It appears that departments largely use the standards as a guideline, while adapting the recommendations to meet the needs of their respective departments.

Question 4: Why are Seville-Guilford firefighters not participating in a fitness program or taking advantage of the station equipment?

This question was best answered by the interdepartmental survey. This survey consisted of 10 questions, with complete results shown in Appendix A. The majority of questions were open and allowed for the addition of commentary as well as multiple responses in an attempt to discover as many motivational factors as possible. At the time of the survey, there were 38 active members on the roster, of which 21 (55%) responded. Of those who completed the survey, 8 (38%) were female, which is slightly higher than the department percentage of 31. The age breakdown closely followed the department profile, indicating an acceptable representation by age group. The next three questions attempted to establish the respondent's general opinion of exercise, as well as determine their actual use of the station equipment. While all respondents felt that exercise was important, to varying degrees, and 85% considering exercise moderately to extremely important, two-thirds of the firefighters did not use the department equipment at all, and only 14% used the equipment more than once a week. Though department personnel are permitted to work out while on duty, a full 81% of respondents rarely or never exercised while on shift.

To find the simplest answer to the first research question, the survey asked, "I do not use the equipment at the station for the following reasons: (Check all that apply)." There was no single reason cited by the majority of the respondents, and all options were chosen by at least one individual. The choices receiving the highest number of responses

showed that members did not know how to use the equipment or what kind of program to start with. The additional commentary included references to lack of time (“not enough time,” and “too busy”) and a general un-familiarity with the gym: “Not familiar with the equipment.” “Don’t know where to start.” One respondent commented that they “spend time making the station look good, not myself.” Only one firefighter felt that it was not necessary to use the department equipment.

Question 5: What will serve as positive motivators for Seville-Guilford firefighters to engage in a fitness program or take advantage of the equipment made available to them?

The interdepartmental survey, questions 8-10 sought to discover what the members felt would improve participation in a fitness program, with an interest in the types of programs and equipment the firefighters wanted made available to them. It is apparent that the membership desires a formal program with training on the equipment, and access to a personal trainer. As one member stated, however, ““I am not sure if there is an incentive that would help. I think we need to be careful not to force folks to do it...as that will turn them away (I think).” Another commented that we needed “more space so you don’t feel cramped in”

Nearly two-thirds (66.7%) emphasized a general fitness program and 42.9% identified weigh-loss as a goal. This coincides with the percentages of department members who wanted an aerobic/cardio program (47.6%) and the additional equipment necessary for a general fitness/aerobic workout. Fully 41% hoped for workout mats, and 35% desired workout DVD’s such as P90X and Insanity. Additionally, the respondents

selected a wide range of program types and desired equipment, including DVD's, mats, and cardio equipment, with an emphasis on general and aerobic/cardiac fitness. Another motivation mentioned by multiple respondents was to allow friends and family members to work out with them using the department facility.

Four personnel skipped the question asking what equipment they would like to see available for use by department members. The survey responses are anonymous. There is no way, therefore, to know if those who skipped the question use or do not use the current gym, or feel that the current equipment meets their needs.

### **Discussion**

The Seville-Guilford Fire & EMS Department is committed to establishing a significant, pertinent, and attractive fitness program for its firefighters – a program that prompts participation and causes a shift to a more health-conscious culture. The literature clearly showed the need for health and diet education, lifestyle modification, physical exams and screenings, data collection, and the importance of exercise in reducing the risk factors associated with cardiac arrest and its prominence as the leading cause of firefighter LODDs.

A formal program is clearly the goal of the WFI. Its emphasis on a personalized approach to fitness, using individualized workout plans, personal fitness trainers, and scheduled evaluations and screenings supports the needs of the SGFD membership. The WFI places particular importance on the medical evaluation, screening, and testing, devoting nearly one-fourth of the 65 page document to describing the recommended procedures and evaluations (11-24).

The survey of SGFD personnel discovered many reasons department members do not use the fitness equipment at the station, and also provided insight into possible incentives, types of equipment they desire, and specific components to be included in a fitness program. It is interesting to note that 100% of the respondents assigned at least some importance to exercise, with nearly 86% rating it moderately important or higher, yet the past use of the department gym hovers at 10%. Of particular note, however, is that 45% of respondents felt both a formal program and access to a personal trainer would help to get people involved. This coincides with question 7 of the survey, in which the leading reasons firefighters did not use the station gym were that they were not familiar with the equipment, did not know where to start, felt intimidated, and did not have a formal program.

### **Recommendations**

Initially, the results of the research will be shared with the Guilford Township Trustees to support the need of establishing a department-wide fitness program. The support of the trustees is imperative to creating and maintaining a fitness program, and allowing personnel to invite family members to use the equipment. Further, their financial support is critical to providing meaningful incentives to the firefighters. Additional means of financial backing may include support from the local firefighter's association, local merchants, and various grant opportunities.

The number of department members who have consistently used the gym over the past year, or more importantly, the number who have not used the equipment, shows that



simply having the equipment available is not sufficient motivation to prompt personnel to exercise. An incentive program, acceptable to both the department membership and the Guilford Township trustees as the governing body, should be created based on achieving pre-established benchmarks or quantifiable fitness goals. These incentives may include allowing family members of department personnel to take part in the program, monetary awards or bonuses, and public recognition through the awarding of certificates or devices to be worn on uniforms. Additionally, a motto and logo should be created and included on shirts, workout gear, and water bottles to be used in the gym. The logo and program should also hold a prominent place during training exercises and meetings to help the idea become ingrained in the department culture.

Currently, the department has one certified personal fitness trainer on staff, and two additional personnel awaiting certification. These trainers should maintain their certifications, and be involved in all aspects of the fitness program, from educating personnel to maintaining equipment to creating an individualized fitness program for each department member. The trainers should also maintain training records and data collection to be used to measure progress and achievement of benchmarks. They should help institute the cultural change necessary to achieve better participation through education, support, and establishing logos, mottos, and programs. The department leadership should also set a good example by participating in all phases of the program.

The department must continue to provide annual physicals and health screenings, as well as resources necessary for personnel to maintain their physical and mental well-being. This includes, but is not limited to, referral to Employee Assistance Programs,

smoking cessation programs, and educational opportunities related to fitness and wellness, diet and exercise.

A health and wellness committee should be established, based on the recommendation of NFPA 1583, and this committee, in addition to steering the program, will be charged with developing a “brand” and logo, with the goal of making the program visible to the membership. Once established, the department will purchase T-shirts and related materials bearing the logo to distribute to personnel who take part in the program, with additional items awarded at the achievement of pre-established benchmarks.

With the exception of medicine balls, SGFD currently has available all of the strength training equipment recommended by the WFI, as well as multiple examples of the recommended cardiovascular equipment. In an effort to meet the needs of a wider range of personnel, the workout area should be increased and include dedicated space for floor mats for aerobic and crossfit training. A large flat-screen television should be affixed in an area visible in the aerobic area, and an assortment of DVD’s (P90X, Insanity, etc) made available for use by department members.

Much of the program can be achieved in the next several months. Longer ranges goals would include a proposed gym/locker room addition to the station so that firefighters would no longer have to work out in the apparatus bays, improving the atmosphere and workout experience, and making it easier to carry on day to day operations, especially when family members are using the equipment.

By implementing these changes to the fitness program, SGFD hopes to realize increased participation by its firefighters, which will improve their fitness for duty and

improve the service we provide our residents, while at the same time reducing the likelihood of a cardiac-related LODD or lost time injury.

### References

- Brehm, B. A. (2004). *Successful fitness motivation strategies*. Champaign, IL: Human Kinetics.
- Haddock, C. K., Poston, W. S. C., Jahnke, S. A., Center for Fire, Rescue, and EMS Health Research, National Development and Research Institute, LLC (2011). *Addressing the epidemic of obesity in the United States fire service*. Greenbelt, MD. National Volunteer Fire Council.
- International Association of Fire Fighters. (2008). The fire service joint labor management wellness-fitness initiative. (Third Edition). Retrieved October 8, 2011, from [http://iafc.org/files/healthWell\\_WFI3rdEdition.pdf.pdf](http://iafc.org/files/healthWell_WFI3rdEdition.pdf.pdf)
- Larson, J. (2011, March 18). *The roi of hospital wellness programs*. Retrieved September 24, 2011, from <http://www.amnhealthcare.com/News/news-details.aspx?id=36564>
- LeCuyer, J. (2001). *Designing the fitness program: A guide for public safety organizations*. Saddlebrook, NJ: Fire Engineering Books & Videos.
- LeDuc, T. (2011, December). Is obesity an overbearing burden on the fire service. *IAFC On Scene*. 24(8).
- Metzger, J., (2009, November). Fit factor: Fitness equipment for fire stations should be chosen for function, not firefighter aesthetics. *Fire Chief*. 53(11). 62-65.
- Meyer, R., (2010, April). Fitness success for firefighters: Seven steps to help you get on the physical fitness track. *Firehouse Magazine*. 35(4), 62.

National Fallen Firefighters Foundation. *16 Life safety initiatives*. Retrieved October, 8,

2011 from <http://everyonegoeshome.com/initiatives/html>

National Fire Academy. (2011, June). *Executive development student manual*.

Emmitsburg, MD.

National Fire Protection Association. (2008 Edition). *NFPA 1583 Standard on health-related fitness programs for firefighters*. (NFPA 1583). Quincy, MA.

National Fire Protection Association. (2007 Edition). *NFPA 1500 Standard on Fire Department Occupational Safety and Health Program*. (NFPA 1500). Quincy, MA.

Obesity rate for firefighters ‘higher than public.’ (2012, January 17). *FireRescue 1*.

Retrieved from <http://www.firerescue1.com/firefighter-safety/articles/1221457-Obesity-rate-for-firefighters-higher-than-public>.

Roberts, M. R. (2012, January 24) *Firefighters’ obesity rate outpaces national average (with related video)*. Retrieved January 28, 2012, from <http://firechief.com/health-safety/fitness/nvfc-firefighter-obesity-20120124/>

Steinbach, P. (2010, November). Corporate fitness programs add value, even if difficult to track. *Athletic Business*. Retrieved September 24, 2011 from <http://www.athleticbusiness.com/articles/article.aspx?articleid=3644&zoneid=7>

U.S. Fire Administration. (2008). *Emerging health and safety issues in the volunteer fire service*. (FEMA Publication No. FA-317).

U.S. Fire Administration. (2010, July). *Firefighter fatalities in the united states in 2009*.

Retrieved December 20, 2011 from

<http://www.usfa.fema.gov/downloads/pdf/publications/ff-fat09.pdf>

## APPENDIX A

## Seville-Guilford Fire &amp; EMS Department Member Survey Results

Question	Answer Option	Response %	Count
Q1. Are you male or female?	Male	61.90%	13
	Female	38.10%	8
Q2. Which category below includes your age?	18-29	19%	4
	30-39	33.30%	7
	40-49	28.60%	6
	50-59	14.30%	3
	60 or older	4.80%	1
Q3. How important is exercise to you?	Extremely	14.30%	3
	Very important	23.80%	5
	Moderately important	47.60%	10
	Slightly important	14.30%	3
	Not at all important	0%	0
Q4. Do you currently use the exercise equipment at the station?	More than once a week	14.30%	3
	Weekly	4.80%	1
	Monthly	14.30%	3
	Do not use	66.70%	14
Q5. Do you exercise while on duty?	Often(>50% of sched. Shifts)	9.50%	2
	Sometimes(25-49% of shifts)	9.50%	2
	Rarely(<25% of sched. Shifts)	19.00%	4
	Do not exercise on duty	61.90%	13
Q6. I use the gym equipment at the station for the following reasons: (Check all that apply)	Stress Relief	26.30%	5
	Weight Loss	31.60%	6
	Strength Training	31.60%	6
	Cardio/Endurance	26.30%	5
	Convenience	26.30%	5
	Motivation	21.10%	4
	Do not use	57.90%	11
	Other (please specify)	5.30%	1

Q7. I do not use the equipment at the station for the following reasons: (Check all that apply)	Not familiar with the equip.	27.80%	5
	Type of equipment	16.70%	3
	Lack of space	11.10%	2
	Atmosphere	11.10%	2
	Feel intimidated	16.70%	3
	Don't feel it is necessary	5.60%	1
	Don't have a formal program	22.20%	4
	Don't know where to start	33.30%	6
	Exercise elsewhere	16.70%	3
	Other (please specify)	27.80%	5
Q8. What do you feel would get/keep people involved in an exercise program at the station? (Check all that apply)	Formal program	45%	9
	Access to personal trainer	45%	9
	Incentives	20%	4
	Accessibility	5%	1
	Allow friends/family to use equipment	35%	7
	Training on equipment	25%	5
	Additional equipment	25%	5
	Other (please specify)	15%	3
Q9. What type of program are you interested in? (Check all that apply)	Cross fit	19%	4
	Aerobic/Cardio	47.60%	10
	Strength	33.30%	7
	Powerlifting	9.50%	2
	Weight loss	42.90%	9
	General fitness	66.70%	14
	Other (please specify)	4.80%	1
Q10. What equipment would you like to see available for use by department members? (Check all that apply)	DVDs(P90X, Insanity, etc)	35.30%	6
	Exercise mats	41.20%	7
	Steps	23.50%	4
	Rowing machine	35.30%	6
	Nautilus type equipment	17.60%	3
	Kettlebells	11.80%	2
	Other (please specify)	17.60%	3



## APPENDIX B

## Ohio Fire Chief's Association Membership Survey Results

Question	Answer Option	Response Percent	Count
Q1. The following best describes my department (Check all that apply)	Fire	16.20%	42
	EMS	1.90%	5
	Fire & EMS	69.5	180
	Full-time	29%	76
	Combination	37.50%	97
	Volunteer	18.10%	47
Q2. Our Fitness and Wellness program includes the following: (Check all that apply)	We do not have a program	23.70%	61
	(skip to question 6)		
	Annual Physicals	42.40%	109
	Annual Physical Ability Testing	17.50%	45
	Pre-employment Physical Ability Testing	58.00%	149
	Personal Trainers on Staff	15%	39
	On-site Fitness Center	59.50%	153
	Off-site Fitness Center	9.30%	24
	Diet/Lifestyle Eval. & Coaching	12.50%	32
	Dept. Health & Safety Officer	20.60%	53
	Other (please specify)		23
Q3. The following best describes our fitness program (Check all that apply)	Mandatory	19.00%	38
	Voluntary	66.50%	133
	Mandatory with Incentives	5.00%	10
	Voluntary with Incentives	16.50%	33
	Other (please specify)		19
Q4. If offered, what incentives are included (Check all that apply)	Gym membership	16.20%	23
	Annual bonus/stipend	10.60%	15
	Workout time while on duty	85.90%	122
	Personal Fitness Trainer	16.90%	24
	Customized Workout	14.10%	20
	Spouse/Family members permitted to use equip.	26.10%	37
	Other (please specify)		19

Q5. What percentage of your personnel engage in a fitness plan?	0-20	28.60%	59
	21-40	22.80%	47
	41-60	19.40%	40
	61-80	17.00%	35
	81-100	12.10%	25
Q6. If you do not have a fitness program, what are the reasons (Check all that apply)	Do not feel it is necessary	1.10%	1
	Lack of/refusal of participation from department members	39.8%	35
	Lack of funds for equip. etc	59%	52
	Lack of support from political entity	39.8%	35
	Unsure how to start program	18.20%	16
	Other (please specify)		23
Q7. Our fitness program follows the following standards (Check all that apply)	IAFF/IAFC FSJLM Wellness-Fitness Initiative	26.6%	41
	NFPA 1583 Standard on Health Related Fitness Prog.	19.5%	30
	Ohio Admin. Code 4123	13.0%	20
	Department Created	67.5%	104
Q8. Our gym/workout room contains the following equipment (Check all that apply)	DVDs (P90X, Insanity, etc)	32.90%	69
	Treadmill	96.70%	203
	Stairclimber	56.20%	118
	Free Weights	94.30%	198
	Stack Weights/Machines	78.60%	165
	Kettlebells	28.10%	59
	Powerlifting Equipment	41.90%	88
	Crossfit Equipment	42.40%	89
Q9. Our program emphasizes the following (Choose the most appropriate answer)	Other (please specify)		21
	Strength training	1.50%	3
	Power lifting	0.00%	0
	Crossfit	2.60%	5
	General Fitness	36.20%	71
	Cardio	14.80%	29
	Member's Choice	44.90%	88
Q10. If you would like to see the results of the survey, please check "Other" and include your name, department, and contact information (including email address) in the comments section	Other (please specify)		9
	Yes, I would like to see the results of the survey	46.20%	102
	No, I would not like to see the results of the survey	53.80%	119
	Other (please specify)		81